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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Jong-Hoon Choi

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EXAMINER

ZIMMERMAN, GLENN

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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# Office Action Summary

Application No.	Applicant(s)	
10/629,714	CHOI ET AL.	
Examiner	Art Unit	
Glenn Zimmerman	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 6-8, 11, 19 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 0703.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 90a and 90b. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The disclosure is objected to because of the following informalities: In the abstract line 1, the examiner suggests changing "potion" to - - portion - -.

Appropriate correction is required.

### ***Claim Objections***

Claims 6-8, 11, 19 and 20 are objected to because of the following informalities:

In claims 6 and 19 line 2 the examiner suggests changing "electrode are" to - - electrode is - -. In claims 7, 20 line 3, the examiner suggests changing "shaped electrode" to - - shaped sub-electrode - -. Appropriate correction is required.

Claims 7, 8 and 11 are objected to for depending from an objected base claim.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4, 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "the second container" in lines 4 and 5. There is insufficient antecedent basis for this limitation in the claim.

In claims 12 and 13 line 1, the examiner believes that the wording "the electrodes" is vague and indefinite, as the electrodes could stand for the triode electrodes, the plurality of electrodes or other combinations of electrodes. What do you mean?

A 112 2<sup>nd</sup> paragraph rejection has been determined for claim 4, as written about above. However, a further evaluation of the claim will be done while interpreting "the second" in lines 4 and 5 as "a second".

Claim 14 is rejected for depending from a rejected base claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsuda et al. U.S. Patent 5,677,590.

Regarding claim 1, Matsuda et al. disclose an electron gun (**title**) for a cathode ray tube (**Fig. 6**), comprising: a triode portion including cathodes (**cathodes Fig. 2 ref. K**), a first electrode (**first electrode ref. 2**), and a second electrode (**second electrode ref. 3**) arranged with predetermined gaps (**Fig. 2**) therebetween;

A plurality of electrodes (**third, fourth and fifth electrodes refs. 4 through 6**) arranged from a position adjacent the second electrode, wherein the plurality of electrodes are capable of receiving voltages;

An anode electrode (**sixth electrode ref. 7 or 8**) arranged farthest away from the cathodes and having a predetermined gap from at least one of the plurality of electrodes (**ref. 7 has a gap from ref. 6**); and

A support (**beading glass ref. 9**) for supporting the plurality of electrodes at predetermined intervals (**Fig. 2**) from each other, wherein one of the plurality of electrodes is a multiple-element electrode (**choose any of ref. 4, 5 or 6**) that includes a first sub-electrode and a second sub-electrode that are arranged having gaps formed (**Choose the method of Fig. 3 or Fig. 5 to make the multiple-element electrodes i.e. ref. 4-6; Figs. 3 and 5 show a gap due to the protrusion.**) between a portion of the first sub-electrode and a portion of the second sub-electrode.

The examiner notices that each of 4, 5 and 6 are multiple element electrodes. References 4 and 5 have first and second sub-electrodes. Reference 6 has two multiple element electrodes with first and second sub electrodes.

Regarding claim 2, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 1, wherein at least one of the first sub-electrode and the second sub-electrode is cup-shaped (**ref. 6 has four cup-shaped sub-electrodes; ref. 5 has two cup-shaped sub-electrodes and 4 has one cup-shaped sub-electrode; Fig. 5 shows two cup-shaped sub-electrodes and one plate shaped sub-electrode; claim 1).**

Regarding claim 3, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 2, wherein the first sub-electrode and the second sub-electrode are cup-shaped and have at least one different dimension from each other. The examiner will choose the upper electrode of ref. 6 in Figure 2. These two sub-electrodes are different from the other as look at the entrances and exits and also the upper sub-electrode has a centrally located piece. Also one could choose the lower multiple electrode of ref. 6

Fig. 2 because as one can see on the right hand side there is a square located near the flange of the upper sub-electrode which makes these two sub-electrodes different in at least one different dimension from each other.

Regarding claim 4, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 3, wherein at least one of the first cup-shaped sub-electrode and the second cup-shaped sub-electrode comprises: a first container including electron beam passage holes (**ref. 5 or ref. 6 lower multiple electrode; one can see both of these have containers including electron beam passage holes**); a flange (**Ref. 5 or 6**) extending around a circumference of an opening of the first container and the second container; and insertion members (**use Fig. 1a ref. 1-2A in ref. 5 or 6; col. 5 lines 50-54**) extending from at least a portion of the flange, wherein the insertion members are arranged into the support. From reading the applicant's specification it appears that the applicant means by container a portion or section of the cup-shaped sub-electrode.

Regarding claim 5, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 1, wherein one of the first sub-electrode is cup-shaped and the second sub-electrode is plate shaped. One can see that the third electrode ref. 4 has a cup-shaped bottom sub-electrode and a plate-shaped top sub-electrode.

Regarding claim 6, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 2, wherein the first sub-electrode is cup-shaped and the second sub-electrode are cup-shaped have at least one substantially identical dimension and the gap is formed between a surface of the first sub-electrode and the second sub-electrode. One can see from Fig. 5 the fourth electrode that both sub-electrodes are

cup-shaped and both have an identical dimension as they are showing symmetry. One will have the gap be located between the sub-electrodes of ref. 4 as one will have them made as in Fig. 3 or Fig. 5 where there is a gap at the flange.

Regarding claim 7, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 6, wherein at least one protrusion is formed on at least one of the first cup-shaped sub-electrode and the second cup-shaped sub-electrode, and the first cup-shaped electrode and the second cup-shaped sub-electrode are connected with the protrusions. Reference 4 the third electrode is made as Fig. 3 or Fig. 5 is providing the protrusions on the flange which leaves a gap. See col. 7 lines 1-11.

Regarding claim 8, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 7, wherein a gap is formed between the first cup-shaped electrode and the second cup-shaped electrode. Reference 4 the third electrode is made as Fig. 3 or Fig. 5 is providing the protrusions on the flange which leaves a gap.

Regarding claim 9, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 5, wherein the first cup-shaped sub-electrode and the second plate-shaped sub-electrode have at least one substantially identical dimension and gap is formed between circumferences of the first cup-shaped sub-electrode and the second plate-shaped sub-electrode. Col. 9 lines 5-15 disclose that planar electrodes i.e. the intermediate electrode element has protrusions. There will be a gap between the intermediate layer and the cups when the intermediate layer has protrusions also. One can see that the identical dimension is that they both are flush at the end. From col. 4



lines 14-24, the projections must be united therefore planer or platelike electrodes have protrusions.

Regarding claim 10, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 1, wherein the multiple-element electrode is formed by bending (**col. 6 lines 42-53**) the first sub-electrode and the second sub-electrode such that insertion members of the sub-electrodes are interconnected and by welding (**col. 7 lines 25-30**) the first sub-electrode and the second sub-electrode together in a position that minimizes generation of friction and noise during operation of the cathode ray tube. The examiner notes that the wording "together in a position that minimizes generation of friction and noise during operation of the cathode ray tube" is relative language, and therefore the limitation is met.

Regarding claim 11, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 6, wherein a predetermined gap is formed between areas of the first cup-shaped sub-electrode and the second cup-shaped sub-electrode that is adjacent to outermost electron beam passage holes. The examiner notes that there is another way of forming multiple element electrodes which is shown in Figure 4 which uses protrusions and the predetermined gap will be adjacent to outermost beam electron passage holes. One can use an electrode form like this for one of the electrodes ref. 4-6. See column 7 lines 40-67 and column 8 lines 1-36.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al. in view of Kwon U.S. Patent 6,642,646.

Regarding claim 15, Matsuda et al. teach an electron gun **(title)** for a cathode ray tube **(Fig. 6)**, comprising: a triode portion including a cathode **(cathodes Fig. 2 ref. K)**, a first electrode **(first electrode ref. 2)**, and a second electrode **(second electrode ref. 3)** arranged in an in-line **(col. 10 line 21)** sequence with predetermined gap **(Fig. 2)** therebetween;

A plurality of electrodes **(third, fourth and fifth electrodes refs. 4 through 6)** arranged at predetermined intervals adjacent **(See Fig. 2)**, wherein the first of the plurality of electrodes is arranged adjacent the second electrode **(Fig. 2)**;

An anode electrode **(sixth electrode ref. 7)** arranged in-line **(col. 10 line 21)** and being at a farthest distance from the cathode and having a gap from at least one of the plurality of electrodes **(ref. 7 has a gap from ref. 6)**; and

A support for supporting the plurality of electrodes **(beading glass ref. 9)**, the anode, the cathode, the first electrode and the second electrode at predetermined intervals **(col. 1 lines 64 and 65)** from each other, wherein one of the plurality of electrodes is a multiple-element electrode **(any of ref. 4, 5 or 6)** that includes a first sub-electrode and a second sub-electrode that are arranged having gaps formed

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between a portion of the first sub-electrode and a portion of the second sub-electrode **(choose to make ref. 4, 5 or 6 according to the method shown in figure 3 or 5 which have gaps)** for reducing noise during operation of the cathode ray tube, but fail to teach the plurality of electrodes receive a voltage. Kwon in the analogous art teach the plurality of electrodes receive a voltage **(Fig. 1 ref. G3, G4 and G4 ref. EC2 and EC3; col. 4 lines 28-37)**. Additionally, Kwon teach incorporation of the plurality of electrodes receiving a voltage to improve the cathode ray tube by providing a voltage requirement for an electrode structure that helps provide compensation for aberration such as astigmatism and thereby substantially improving the focusing characteristics over the whole phosphor screen **(col. 2 lines 36-44)**.

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have the plurality of electrodes receive a voltage in the biasing of Matsuda et al., since such a modification would improve the cathode ray tube by providing a voltage requirement for an electrode structure that helps provide compensation for aberration such as astigmatism and thereby substantially improving the focusing characteristics over the whole phosphor screen as taught by Kwon.

Regarding claim 16, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 15, wherein at least one of the first sub-electrode and the second sub-electrode is cup-shaped **(ref. 5 or 6 have sub-electrodes that are both cup-shaped)**.

Regarding claim 17, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 15, wherein the first sub-electrode and the second sub-electrode are cup-

shaped and have at least one different dimension from each other. The examiner will choose the upper electrode of ref. 6 in Figure 2. These two sub-electrodes are different from the other as look at the entrances and exits and also the upper sub-electrode has a centrally located piece. Also one could choose the lower multiple electrode of ref. 6 Fig. 2 because as one can see on the right hand side there is a square located near the flange of the upper sub-electrode which makes these two sub-electrodes different in at least one different dimension from each other.

Regarding claim 18, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 15, wherein one of the first subelectrode is cup-shaped and the second sub-electrode is plate shaped **(third electrode ref. 4; also one can choose to make ref. 5 or 6 according to the method of Fig. 5 which has an intermediate plate with protrusions; col. 9 lines 7-14).**

Regarding claim 19, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 15, wherein the first sub-electrode is cup-shaped and the second sub-electrode are cup-shaped having at least one substantially identical dimension and the gap is formed between a surface of the first sub-electrode and the second sub-electrode. Reference 5 the fourth electrode has both cup shaped electrodes and have at least one substantially identical dimension and a gap is formed between the surfaces using the method of Figure 3 or 5.

Regarding claim 20, Matsuda et al. disclose the electron gun for a cathode ray tube of claim 15, wherein at least one protrusion is formed on at least one of the first cup-shaped sub-electrode and the second cup-shaped sub-electrode, and the first cup-

shaped electrode and the second cup-shaped sub-electrode are connected with the protrusions thereby forming a gap between the first cup-shaped sub-electrode and the second cup-shaped sub-electrode. Choose ref. 5 or 6 and make them according to the method of Fig 3 or 5, and they will be welded at the protrusions given them a gap.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Zimmerman whose telephone number is (571) 272-2466. The examiner can normally be reached on M-W 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Glenn Zimmerman



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